Torr., which is a genuine *Rutaceæ*; *Holacantha Emoryi*, Gray, an undoubted *Simarubaceæ*; *Koberlinia spinosa*, Zucc., which has been referred to the same order, but is more anomalous; and finally *Canotia holacantha*, which, if I mistake not, must take its place among the typical *Rutaceæ*, notwithstanding some anomalies."

A new genus of the *Loasaceæ*, from Lower California, is described and is called *Sympetaleia* from its most striking and anomalous character of a truly gamopetalous corolla! In *Eucnide* the petals are united at the very base into a ring, but in this new genus they form a long tube even to the base of the spreading limb. A new genus of the *Hydrophyllaceæ* is described and dedicated to Mr. J. G. Lemmon an ardent and successful explorer of the Sierra Nevada region. *Lemmonia Californica* is the name of genus and species, somewhat related to the *Phacelieæ*, but belonging properly to the *Nameæ*. *Echinospermum Greenei* is described and forms an additional link between *Echinospermum* and *Eritrichium*. The genera *Echidiocarya* Gray, and *Leptoglossis* Benth., are each described with two species.

American Journal of Science and Arts, June.—Dr. Gray gives a review of the "Organogeny of the Female Flower of *Gnetum Gnemon*," by O. Beccari, being extracted from the Italian Botanical Journal of January, 1877. It is a disputed point whether the *Gnetaceæ* should rank with the Gymnosperms or not. There seems to be an obvious and real transition from the *Gnetaceæ* to Angiospermous Dicotyledons.

The death of Alexander Braun, a distinguished German systematic botanist, is announced, and a short account of his life and labors given. He was born at Ratisbon, May 10, 1805, and died at Berlin, March 20, 1877. He seems to have been one of the few systematic botanists left to Germany, all the distinguished botanists of the present day having turned their attention to histology. A. Braun, Carl Schimper, Agassiz, and Engelmann were all together at the University of Heidelberg fifty years ago. The last named is the only survivor. Braun's *forte* was morphology. His first important contribution to science was a memoir on the arrangement of the scales of pine cones, published in 1830. "With this publication began the present knowledge of phyllotaxis. His work upon *Marsilia*, *Pilularia* and *Isoetes* may be essentially complete. But his prolonged studies of *Chara*, which began forty years ago, and the completion of which would have crowned his career, have probably not been finished, or brought into such form that results may be fully secured.

American Naturalist, June.—Mr. W. J. Hoffman, M. D., contributes an interesting paper on "The Distribution of Vegetation in Portions of Nevada and Arizona." He divides the Flora into four classes; I. the flora of the mountains, II. the flora of the foot-hills, III. the flora of the plains, IV. the flora of the salt marshes. A short table is given showing the elevation, timber line, latitude of several mountains and the elevation of the nearest plains. An interesting abstract of Professor Morren's communication to the Royal Academy of Belgium, on "Vegetable Digestion," is given by Byron D. Halsted. Two interesting experiments, made by Professor Sachs upon the porosity of wood, are noted.

NOTHOLAENA DEALBATA.—We have just received from James Wilson, Esq., of Arkansas City, Cowley Co., Kansas, some good specimens of this rare and highly prized fern. Mr. Wilson says that he has just found it in great quantity and will take pleasure in supplying any of our readers with specimens next autumn, when the fronds are in fruit. At present he finds on many of the tufts three kinds of fronds; the dead ones and the almost perfect ones of last year, with the tender little half-grown fronds of this season.—J. M. C.

NOTES.—This spring, while collecting *Stylophorum diphyllum*, Nutt., I noticed a flower with only *two* petals. As the petals are very fugacious, I supposed, at first, that

two had fallen, but close examination showed that two were all the corolla ever had. Three of the normal four were united into *one* and the lines of coalescence were distinctly visible. The fourth petal occupied its natural position. It is quite common to find this plant with three leaves; indeed, it is more plentiful than the two-leaved form.

A very large form of *Orchis stricta*, L. grows at Chain Mill Fall, near Hanover The plants are about a foot and a half high and *very* leafy and branching. The leaflets are fully an inch broad and each one is margined with dark purple. The corolla, instead of being "small" is an inch broad and the base of the limb is penciled with purple lines! The whole plant is clothed with long, soft hairs, villous-pubescent.

Jefferson County has been mentioned before as growing some large weeds in the Composite line and we come with another confirmation of its ability in this direction. While taking a walk last winter I noticed a *Vernonia* (*V. fasciculata*, Mx.) that seemed to be very full of heads. Curiosity getting the better of me, I resolved to count them. At the end of three quarters of an hour, I had broken off the last one, the whole number of *heads* being 3290!

Taking an average of 20 flowers to the head (as they would easily reach that number) we would have 65800 flowers produced by a single plant. Suppose that only one-half of the akenes came to perfection and one-tenth of these were carried to suitable conditions for growth, what an immense power of propagation did this one specimen possess. The plant was only 8 feet high, and $5\frac{3}{4}$ inches in circumference at the ground.

As far as I know, Trimble Co., Kentucky, has furnished the champion *Arisæma* (*A. triphyllum*, Torr.). I give some of the measurements.—

Height 30 inches; Leaflets, 10 inches long by $9\frac{1}{2}$ broad; Spadix, $2\frac{1}{2}$ inches long; Spathe, 4 inches long; Diameter at base of the stalk $1\frac{1}{2}$inches; Corm $7\frac{1}{2}$ inches in circumference. Can any one tell us of a larger one?

C. R. Barnes, *Madison, Ind.*

Cross-Fertilization of Aristolochia.—Mr. H. G. Hubbard, now traveling in Jamaica, has communicated to a western newspaper some interesting notes on the natural history of the island. His observations on *Aristolochia* are fully confirmatory of the studies of others in the case of *Aristolochia clematitis*. "I have had an opportunity of examining the flowers of *Aristolochia grandiflora*, the 'Dutchman's pipe,' called here the 'John Crow,' or 'carrion flower,' from the putrid stench which it exhales. This flower is one of the largest known. The tube or bowl, about a foot long as it hangs from the vines, makes a very good imitation of the Dutchman's china pipe, but the mouth of the bowl turns forward and expands eight or ten inches in diameter, and from the lower edge of this dangles a slender tail, about a foot long. The whole flower is spotted green and purple, like a diseased liver. Notwithstanding its vile odor and uncanny look, it is the most interesting of flowers. The tube is divided into three chambers by constrictions and valves furnished with backward-pointing bristles, the whole forming a trebly guarded fly-trap. The outer chamber alone gives out the carrion odor, attracted by which, insects enter, and finding themselves deceived try to escape, but the long recurved bristles, which line the walls, entangle them when they turn back, but favor their progress through the second trap and into the second chamber beyond. Finally they find their way through the third and last trap, into the third chamber. And here you will find small flies and beetles by dozens, if you open the blooming flowers. Now what is the object of this evident contrivance? The flower is not insectivorous. The entrapped insects are always found alive and in good condition, no dead ones in any of the chambers. In fact, the last one, which they must eventually reach, and which also contains the floral organs, seems to have been especially contrived for their comfort and convenience. It is spacious, unencumbered with bristles,

except just about the entrance, where a perfect forest of them renders escape into the preceding chamber impossible, and moreover about the floral organs an abundance of nectar supplies them with food. There is a fine stumbling-block in the way of the believer in the laws of cross fertilization. As Professor Gray would say, this plant seems to be formed on the plan of 'how not to do it.' Skeptics have pointed triumphantly to the *Aristolochia* as a plant which, with the utmost ingenuity, has provided for insuring self or close fertilization. They had opened flowers in full bloom, found the anthers pouring forth pollen, and the imprisoned insects skipping about the inner chamber completely dusting themselves and its walls with the yellow grains. The stigmatic surface, too, had long been fertilized, its lobes had closed, and having performed its office the pistil was withering away. The fact of self-fertilization in this plant seemed proved. Nature, however, does not disclose all her secrets on the first inspection, and a more careful study of this flower in all its stages will show that its wonderful machinery is contrived solely for securing cross-fertilization through the agency of insects, and that it cannot fertilize itself. In fact the anthers and stigma in any flower *are never open at the same time*. The mystery is explained when we examine the flowers that have blossomed and are withering: *the trap is open and the insects all flown*. Each of the three constrictions, which were at first so narrow as only to admit of a small insect pushing its way between the hairs, is now gaping widely open, and all the bristles so wilted and flaccid as to offer no impediment to their escape. Now turning to a bud just bursting into flower, we find the bristles rigid and the trap set. The stigma is now widely open and ready to receive pollen, but the anthers tightly closed and their pollen quite green. Each flower has then a double duty to perform; first, to catch insects which have been liberated by some flower previously in bloom, and to effect its fertilization with the pollen which they bring; second, to feed and hold them there until its stigma has closed and its anthers burst. And, finally, it opens its trap and sends them forth with unimpaired vigor and a fresh load of pollen for the next flower that blooms."—AMERICAN NATURALIST, *May*.

BOTANICAL NOMENCLATURE.—There are two questions sometimes agitated with respect to the naming of plants. One is, as to the manner of writing specific names, the other, as to the kind of names to be given. The writer would heartily endorse the general custom of botanists with regard to the first question, and would deprecate their custom with regard to the second. Some botanists, after the manner of zoologists, make all their specific names begin with a small letter. Whether a species is named for a man, country, or any thing else with a proper name it must begin with a small letter, thus destroying every remnant of resemblance it might have borne to the original name. On what grounds such a rule was made, it would be hard to say. The rules of language are very plain on such a point and they should not be violated for trivial reasons. It is to the credit of botanists in general that they have not yet adopted this innovation which makes science ungrammatical. But in regard to the second point. Can we not have a little relief from the proper names that in most unstinted lavishness are applied to species? What is the use of them, or what do they mean? If a country is to be honored by a botanical name, let it be honored *once* and then let it retire, but the endless processions of *Canadensis*, *Caroliniana*, *Virginiana*, etc., are a little monotonous, to say the least of it, especially when the names are not always suitable. Such names may commemorate the place from whence the first specimens were obtained for description, but what peculiar appropriateness have they after further discovery. This is the very difficulty of naming a species from any locality. While such a name may be suitable for a time, further discoveries may prove the plant to be of very wide range and may often find it in greater abundance than at the first published locality. But the names of persons are used just as lavishly. It is extremely suitable to dedicate one species or two to diligent